WHAT IS CLAIMED IS:

1. A magnetic levitation motor comprising:

a rotor having a main body formed from a magnetic member and a permanent magnet attached to a peripheral surface of the main body;

a stator disposed opposite to the rotor, the stator having a first stator winding that generates a levitation control magnetic flux for controllably levitating the rotator body, a second stator winding that generates a rotation magnetic flux for rotating the rotator body and a first stator core having the first stator winding and the second stator winding; and

a direct current magnetic field generation device that generates a magnetic flux radially spreading from the rotor to the stator,

wherein the first stator core is formed from a plurality of individual stator core sections, each of the individual stator core sections having a base section and a salient pole section extending from a central section of the base section, wherein the first winding and the second winding are wound around the salient pole section of each of the individual stator core sections.

2. A magnetic levitation motor according to claim 1, wherein the first stator core is formed to a circular ring section and a plurality of salient poles radially extending toward a center of rotation from the circular ring section, and the base section of the stator core section has side faces and a peripheral surface that defines a part of an external periphery of the circular ring section of the first stator core, wherein the side faces of the base sections of a plurality of the stator core sections are connected together to form the circular ring section of the first stator core.

3. A magnetic levitation motor according to claim 2, wherein the salient pole sections of the plurality of the stator core sections define the salient poles of the first stator core, respectively.

4. A magnetic levitation motor comprising:

a rotator body formed from a magnetic material; and

two magnetic levitation motor sections each containing a rotor section and a stator section opposite to the rotor section, the two magnetic levitation motor sections disposed in parallel with each other in an axial direction of the rotator body,

wherein the rotor section has a permanent magnet attached to a peripheral surface the rotator body, the permanent magnet generating a magnetic flux spreading in a radial direction of the rotor section,

the stator section having a first stator winding that generates a levitation control magnetic flux for controllably levitating the rotator body, a second stator winding that generates a rotation magnetic flux for rotating the rotator body and a first stator core having the first stator winding and the second stator winding, and

the first stator core is formed from a plurality of stator core sections, each of the stator core sections having a base section and a salient pole section extending from a central section of the base section, wherein the first winding and the second winding are wound around the salient pole section of each of the stator core sections.

5. A magnetic levitation motor according to claim 4, further comprising a cylindrical motor case, wherein the first stator cores of the stator sections in the two magnetic levitation motor sections are attached to an internal peripheral surface of the cylindrical motor case and separated a distance from each other in the axial direction, and the permanent magnets

of the rotor sections are formed from two sets of plural segmented permanent magnets, respectively, and separated a distance from each other in the axial direction.

6. A magnetic levitation motor according to claim 5, wherein each of the two sets of plural segmented permanent magnets is composed of four permanent magnet segments divided from a cylindrical permanent magnet, the four permanent magnet segments are disposed at equal intervals along a peripheral direction of the rotator body, and the two sets of plural segmented permanent magnets are provided on the rotator body in a manner to have mutually opposite polarities.

7. A magnetic levitation motor according to claim 6, further comprising two detection members provided on the rotator body at location interposing the two magnetic levitation motor sections and two gap sensors disposed opposite to the detection members.

8. A magnetic levitation motor according to claim 1, further comprising a bearing section having a second stator core disposed about an external periphery of the rotator body and a first stator winding wound around the second stator core for generating the levitation control magnetic flux, the second stator core being spaced a distance from the first stator core in the axial direction,

wherein the second stator core is formed from a plurality of stator core sections, each of the stator core sections having a base section and a salient pole section extending from a central section of the base section, wherein the first winding is wound around the salient pole section of each of the stator core sections, and the base section has a side face having a non-magnetic section.

9. A magnetic levitation motor according to claim 8, wherein the non-magnetic section is formed from a cut formed in the side face of the base section.

10. A magnetic levitation motor according to claim 8, wherein the non-magnetic section is formed from a non-magnetic material attached to the side face of the base section.

11. A magnetic levitation motor according to claim 8, wherein the second stator core is formed from a circular ring section and a plurality of salient poles radially extending toward a center of rotation from the circular ring section, and the base section of the stator core section has abutting side faces, wherein the abutting side faces of the base sections of a plurality of the stator core sections are connected together to form the circular ring section of the second stator core, and the non-magnetic section is disposed in every other one of the abutting end faces between the base sections.

12. A magnetic levitation motor according to claim 11, wherein the salient pole sections of the plurality of the stator core sections define the salient poles of the second stator core, respectively.

13. A magnetic levitation motor according to claim 1, wherein the direct current magnetic field generation device is provided on the stator.

14. A magnetic levitation motor according to claim 1, wherein the direct current magnetic field generation device is formed from a plurality of segmented permanent magnets affixed to a peripheral surface of the rotor.

15. A method for manufacturing a magnetic levitation motor, the magnetic levitation motor comprising:

a rotor having a main body formed from a magnetic member and a permanent magnet attached to a peripheral surface of the main body;

a stator disposed opposite to the rotor, the stator having a first stator winding that generates a levitation control magnetic flux for controllably levitating the rotator body, a second stator winding that generates a rotation magnetic flux for rotating the rotator body and a stator core having the first stator winding and the second stator winding; and

a direct current magnetic field generation device that generates a magnetic flux radially spreading from the rotor to the stator,

the method comprising the steps of:

providing a plurality of individual stator core sections, each of the individual stator core sections having a base section and a salient pole section extending from a central section of the base section;

winding the first winding and the second winding around the salient pole section of each of the individual stator core sections; and

connecting side faces of the base sections of the individual stator core sections to form the stator core.

16. A method for manufacturing a magnetic levitation motor according to claim 15, wherein the stator core has a circular ring section and a plurality of salient poles radially extending toward a center of rotation from the circular ring section, the side faces of the base sections of a plurality of the stator core sections are connected together to form the circular ring section of the stator core.

17. A method for manufacturing a magnetic levitation motor according to claim 15, wherein, after the first winding and the second winding are wound around the salient pole section of each of the individual

stator core sections, side faces of the base sections of the individual stator core sections are connected together to form the stator core, and the stator core is affixed to an internal peripheral surface of a cylindrical motor case.